

**Tyson Foods Region 7 Third Party Specification Review Action Items and Closure Tracking Tool**

#	Finding	Responsibility	Due date	Completed
1	Tyson Foods Engineering should review its engineering specification revision processes to ensure that future specification revisions are properly documented, reviewed, approved, and issue-dated.	Ajay Chatlani / Chad Merchant	1/22/2014	1/10/2014 - Modifications are visible in revised Specifications
2	Prior to issuing one or more engineering specifications on an individual project, Tyson Foods must ensure that the revision date included on the footer is consistent with the latest revision date listed in the revision log table. If the revision date and revision number are to be included in the document file name (as provided to this reviewer), those dates and revision numbers should also be checked for consistency before a specification is provided to the receiving party.	Ajay Chatlani / Chad Merchant	1/22/2014	1/10/2014 - Modifications are visible in revised Specifications
3	Include the phrase "End of Specification" at the conclusion of the text body for each specification. The purpose of including this phrase is to clearly convey to the reader that the specification text body has concluded.	Ajay Chatlani / Chad Merchant	1/22/2014	1/10/2014 - Modifications are visible in revised Specifications
4	For page numbering, use the "page # of total pages" type format (e.g. Page 5 of 23). This page number format provides a manner in which the reader can verify that they have all pages of the specification in its entirety.	Ajay Chatlani / Chad Merchant	1/22/2014	1/10/2014 - Modifications are visible in revised Specifications
5	Tyson Foods should revise its specifications to eliminate the use of bullet points. Each provision of its engineering specifications should be uniquely, explicitly and sequentially numbered (e.g. 1.2, 1.2.3.1,).	Ajay Chatlani / Chad Merchant	1/22/2014	1/10/2014 - Modifications are visible in revised Specifications
6	Refrain from using blanket references to guidelines, standards or other documents that create ambiguous requirements. If a guideline, standard, or other requirement from another organization is to be referenced, it must be done with a discernible document ID.	Ajay Chatlani / Chad Merchant	1/22/2014	1/10/2014 - Modifications are visible in revised Specifications

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7	<p>Because the requirements for different types of piping are variable, this reviewer recommends that Tyson Foods segment out and differentiate the specific requirements for the following types of piping accordingly: i. Refrigerant piping shall comply with B31.5. The specification could also require compliance with the piping provisions of IIAR 2 as a lower level standard. ii. Secondary fluid piping shall comply with B31.5 since this type of piping is also included in the scope of B31.5. iii. Equipment piping for evaporative condensers, air units, etc. If Tyson Foods has other equipment-related specifications that cover these types of refrigeration equipment, those specifications shall prescribe that the piping therein comply with B31.5.iv. Relief vent piping is outside of the scope of B31.5 since it is not pressure piping. There is RAGAGEP for relief vent piping materials in both ASHRAE 15 and IIAR 2. There is also RAGAGEP for the engineering (sizing) for the application of relief protection and sizing of relief vent piping. The requirements for overpressure protection of ASME stamped vessels and equipment originates from ASME the ASME Boiler and Pressure Vessel Code Section VIII Division 1.Differentiating the various types of piping within the engineering Specification 15601 (and others) will allow the respective requirements for each type of piping to be more effectively conveyed.</p>	Ajay Chatlani / Chad Merchant	1/22/2014	1/10/2014 - Modifications are visible in revised Specifications
8	<p>Section 1.9.1 of specification 15684 states that the ammonia readout panel shall be located outside of the engine room and that the enclosure can be a NEMA-1. Recommend that you revise this requirement to be more specific with the enclosure requirement for various possible locations for the panel. For example, if “outside the engine room” becomes an outdoor location, a NEMA-1 class panel would not be acceptable (likely a NEMA-4 as a minimum).</p>	Ajay Chatlani / Chad Merchant	1/22/2014	1/10/2014 - Modifications are visible in revised Specification 15684

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9	Section 1.9.1.3 of specification 15684 establishes requirements for the actuation of engineering controls at a sensed ammonia concentration of 20,000 ppm (2%). Section 2.3.2.1 of 15684 specifies the range of the detector to be 0-20,000 ppm. This reviewer would recommend not establishing a trigger point for engineering control that is at the upper span of the specified sensor. Consider a lower trigger concentration of ca. 16,000 ppm or thereabouts but avoid triggering at the end of the sensor's span. This is also consistent with the requirements for emergency control in Section 1109.4 of the UMC (2012).	Ajay Chatlani / Chad Merchant	1/22/2014	1/10/2014 - The manufacturer of Ammonia detectors used by Tyson was consulted on appropriate use of detection equipment. The manufacturer advised that the detector is designed and appropriate for its current use and setpoints in place at Tyson Foods.
10	Sections 2.2.3 and 2.3.2.2 of Specification 15684 appear to be missing requirements. Review and add the supporting requirements.	Ajay Chatlani / Chad Merchant	1/22/2014	1/10/2014 - Modifications are visible in revised Specification 15684
11	Section 1.5.4 of Specification 15685 is intended to identify the quantity of ventilation air to be exhausted from a machinery room in the event of a leak. None of the subsections (1.5.4.1-1.5.4.3) relate to machinery room ventilation rates. All of the subsections to 1.5.4 relate to functional requirements for machinery room ventilation systems. This section needs to be revised accordingly.	Ajay Chatlani / Chad Merchant	1/22/2014	1/10/2014 - Modifications are visible in revised Specification 15685

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12	<p>Section 1.5.13 of Specification 15685 has provisions for turning off emergency ventilation fans for a machinery room and this requirement is consistent with override control in Section 13.3.11.4 of IIAR 2-2008. At present, IIAR does not have an interlock requirement to shut down the electrical equipment within the machinery room when the “off” override of machinery room emergency ventilation is activated. Recommend interlocking the electrical shutdown of your machinery rooms to be tripped when ventilation fans are turned off using the override. This interlock is intended to remove potential ignitions sources that are electrical in nature in order to reduce the probability of a deflagration because, in the event of an incident, the concentration of ammonia in the machinery room will rise when ventilation fans are cycled off.</p>	Ajay Chatlani / Chad Merchant	1/22/2014	<p>1/10/2014 - Tyson Foods addresses this recommendation by declassifying the engine rooms through the use of engineered detection and ventilation systems as stated in Section 13.1.7.2 of IIAR 2 2008 Addendum. Compressors and related equipment are automatically shut down at 2% NH3 concentration as identified in Section 13.1.13.1 of IIAR 2 2008 Addendum B. The interlock as described in the recommendation is not a RAGAGEP requirement. Emergency response procedures address controls of engine room equipment, but specific circumstances may dictate specific actions to be taken to mitigate a release incident and to protect the public and the environment. Note – the purpose for the “off” selection, only located in the secured location is to perform maintenance. This is not intended to be used during an incident.</p>

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13	<p>Emergency pressure control system (EPCS) Section 1105.9 of the IMC (2012) requires the installation of an EPCS in accordance with Section 606.10 of the International Fire Code. This applies to refrigeration systems containing more than 6.6 lb of flammable, toxic, highly toxic, or ammonia. Section 606.10 reaffirms the applicability to include flammable, toxic, and ammonia refrigerants and further requires the EPCS to be implemented in accordance sections 606.10.1 and 606.10.2 of the IFC. The 2008 edition of IIAR 2 added informative Appendix K with additional guidance on the EPCS. July 26, 2013 Tyson Foods Engineering Specifications Review Page 21 of 33 actuated and to evaluate whether the actuation of the cross-over valve itself will reduce or increase hazard. The sequences of control for all phases of the EPCS need to be reviewed carefully to ensure safe operation for each given refrigeration system application and those sequences modified as-necessary to control potential hazards.</p>	Ajay Chatlani / Chad Merchant	1/22/2014	<p>1/10/2014 - Although this recommendation identifies a requirement in the International Fire Code (IFC) for installing an Emergency Pressure Control System (EPCS), Tyson Foods does not typically install them. IFC addresses all refrigeration systems generically where IIAR is specific to our ammonia systems which is the standard adopted by Tyson. This corresponds with the reviewers RAGAGEP hierarchy listed in his report. 2008 edition of IIAR 2 lists the EPCS under an informative appendix which is not required by that standard. EPCS controls if used require facility specific operating procedures to ensure safe operations along with very effective mechanical integrity procedures. PHAs must also evaluate safety systems in use and therefore addressed requiring no additional action by Tyson on this issue at this time.</p>

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14	<p>There are other machinery room-related requirements that need to be captured in either standard design or engineering specifications to be consistent with RAGAGEP including: Access – Section 1106.3 of the UMC (2012) prescribes minimum clearance requirements for refrigeration equipment. In addition, Section 1112.3 of the UMC (2012) requires that stop valves required by Section 1112.0 be readily accessible from the refrigerating machinery room floor or a level platform. This is related to Deviation (B). Illumination – Section 1106.4 of the UMC (2012) establishes minimum requirements for lighting. Refrigerant charging port protection – Addendum d to ASHRAE 15-2010, Section 1101.10 of IMC (2012), and Section 1106.14 of the UMC (2012) have added provisions that requires securing of refrigerant charging port locations with locking-type tamper-resistant caps or other means to prevent unauthorized access.</p>	Ajay Chatlani / Chad Merchant	1/22/2014	<p>1/10/2014 This item does not require any changes to the specification templates provided for review. Item 14 relates to system design in accordance with RAGAGEP. Tyson follows RAGAGEP during design which is validated through our PSM functions such as PHA, PSSR, ERP/EAP, MEB, etc. Design and PSM are integrated to provide holistic approach.</p>
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